# LX T-04

## Twinax
## Connection

# *User's Guide*

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# Contents

# About this guide

The guide applies to the Intermate LX T-04 with software release K12-xxxx and to subsequent releases until otherwise notified.

The guide consists of five sections:

| | |
|---|---|
| **Introduction** | The Intermate LX T-04 and the concepts used in this guide. |
| **Installation** | Connecting your Intermate LX T-04 to the printer and the IBM system. |
| **Configuration** | How to configure your Intermate LX T-04 from a terminal. |
| **Advanced Functions** | How to use your printer beyond standard IBM operation. |
| **Solving Problems** | Checklist for identifying and solving problems. |
| **Appendices** | Contains supplementary and other useful information. |

Every care has been taken in the preparation of this guide; if you detect any inaccuracies or omissions, please inform LCI Intermate A/S at the address in appendix *H. Customer Support* on page 77.

# 1. Introduction

The Intermate LX T-04 is a protocol converter, which makes it possible to connect the Lexmark 23xx Plus, Lexmark 4227 and Lexmark 4227 Plus printers to an IBM 5250 (Twinax) environment.

## Theory of Operation

Print data from an IBM host is in a format that cannot be recognized by a PC type printer. The Intermate LX T-04 converts IBM control and character codes to ASCII control commands and characters, which are recognizable by the Lexmark matrix printer. Together, the Intermate LX T-04 and the attached printer appears to the IBM host as an original IBM twinax printer.

## ASCII Printer Driver

The Intermate LX T-04 can utilize many of the functions resident in the attached printer, such as underlining, page formatting and paper source selections. The control commands for these functions reside in the Printer Drivers. These cover the standard printer types. See *Appendix A* for a list of available Printer Drivers.

# IBM Printer Emulation

The following IBM printers can be emulated by the Intermate LX T-04 and the attached Lexmark matrix printer:

- IBM 4214 (default).

- IBM 4230.

- IBM 5256.

- IBM 5224.

- IBM 5225.

See *Appendix F* for technical specifications.

# 2. Installation

## Unpacking

Unpack and check all the items using the following check list. Contact your dealer if anything is missing or damaged. All packing materials are recyclable. The Intermate LX T-04 Hardware Pack (part no: 23564) contains:

- Intermate LX T-04                    Part no: 23564

- Twinax cable                    Part no: 13851

- Power Cable Assembly

- Mounting screws

- LX T-04 Twinax Connection          Part no: GM-001-xx
  User's Guide

- LX T-04 Hardware Installation sheet    Part no: GS-007-xx

**Optional:**

- Flash loading cable                    Part no: 21353

## Printer Attachment

First you establish contact between the Intermate LX T-04 and the Lexmark matrix printer. Prepare this by checking that the LX T-04 is correctly installed.

1.    Switch off the printer.

2.    Make sure that the Intermate LX T-04 is attached correctly to the printer. See separate sheet for details about installing the interface.

**3.**     Set the address switch to position '9' (test printout function).

**4.**     Switch on the printer. The SYSTEM indicator flashes for a few seconds.

The Intermate LX T-04 produces a test printout on the printer, which shows the firmware revision and basic configuration. The default configuration is for a IBM Proprinter emulation.

**Printout:**

```
******** TEST PRINTOUT ********
Intermate LX T-04 version: K12-xxxx

Printer Driver #32 IBM Proprinter
IBM Printer Emulation_____ IBM 4214 model 2
System Language_____ 500 International Set 5
ASCII Char. Set_____ PC-858
```

The default configuration supports Proprinter compatible printers. If you want to change the configuration, you can do this later using Configuration from the System when the Intermate LX T-04 has been installed towards the host. You can also go to Section 3 before continuing with System Attachment.
The test printout shows if the Intermate LX T-04 has been configured for your printer by the dealer/distributor.

**Example:**

The printout shows that this Intermate LX T-04 has already been configured for another printer:

```
******** TEST PRINTOUT ********
Intermate LX T-04 version: K12-xxxx

Printer Driver #34 Epson LQ
IBM Printer Emulation_____ IBM 5225 model 1
System Language_____ 500 International Set 5
ASCII Char. Set_____ _PC-850
```

# System Attachment

When your Intermate LX T-04 is configured, and the configuration is verified by a test printout, it is time to connect it to the IBM host.

The AS/400 configuration is easiest done using the Auto Configuration. The LX T-04 then configures as a *4214 printer device.

Make sure that the printer is switched off and the T-cable and the twinax cables are properly attached.
Then follow these steps to configure your AS/400 and the LX T-04.

**1.** Find a free device address by printing a device address chart using the CL command:

```
PRTDEVADR
```

**2.** Set the device address (0-6) on the LX T-04's address switch.

**3.** Enable Auto Configuration using the CL command:

```
CHGSYSVAL SYSVAL(QAUTOCFG) VALUE('1')
```

**4.** Connect the LX T-04 to the network and switch the printer ON.
If the device address has been changed from another valid value (0-6), you must confirm by stepping the address switch one step forward, and then back. The new device address is confirmed by a printed message.

**5.** Verify that the AS/400 has detected a new device type *4214 by using the CL command WRKDEVD PRT* and pressing F5 (refresh) continuously.

**6.** Start the Printer Writer for the device:

```
STRPRTWTR DEV(PRT08)
```

**7.**    Make a test printout:

```
CHGJOB PRTDEV(PRT08)
PRTDEVADR CTLD(CTL01)
```

If you do not receive a printout, check if there is a message waiting on the writer:

```
WRKWTR PRT*
```

*Caution:*    Twinax cables are heavy. Please make sure that they are sufficiently mechanically supported in order to avoid damage to your Intermate LX T-04 or your printer.

The SYSTEM indicator flashes for a few seconds and is then constantly lit. To verify the attachment, make a printout.
You have completed the installation procedure, and your Intermate LX T-04 is ready for use. It does not need any attendance or service during normal operation.

# 3. Configuration

Although the Intermate LX T-04 is prepared for operation at delivery, you may want to change the configuration. A test printout verifies the current configuration, see *Section 2*.
The configuration can be done in two ways:

- **Configuration from a Terminal**

  This is the method described in this section. The configuration method requires a dedicated IBM 5250 terminal such as a 3180, 3179, 3197, 347x or 348x.

- **Configuration from the System**

  The Intermate LX T-04 can also be configured using downloaded programming sequences from the system, see *Section 4*.

## Configuration from a Terminal

The Intermate LX T-04 is equipped with a menu-driven Configuration Utility. This provides a step-by-step method to adapt the Intermate LX T-04 to your IBM host and printer. Follow these steps to start the configuration:

**1.**   Switch off the printer.

**2.**   Connect a terminal to the Intermate LX T-04 using the T-cable, and switch the terminal on. The terminal should be terminated.

**3.**   Set the address switch in position '7' and switch on the printer. Wait a few seconds after the SYSTEM indicator has stopped flashing.

**4.**   Select position '9'. Wait until the SYSTEM indicator starts to flash.

**5.**   Select position '7' again.

Within a few seconds, the Key Definitions Menu should appear on your

terminal.

The rest of this section is a guide to the Configuration Utility. If you want to restart the configuration, just switch the Intermate LX T-04 off and repeat from step 3.

# Key Definitions

```
=============================================================
    Intermate LX T-04 4214    version: K12-xxxx       960103
=============================================================


    KEY DEFINITIONS

    _Right
     Left
     Up
     Down
     Enter




Assign Cursor keys              Intermate International A/S 1996
```

The first menu is for assigning the specific keys to be used in the configuration. No other keys than the five assigned can be used. Press the key you wish to assign when the corresponding value is highlighted. The highlight moves to the next value after the key has been assigned. Right, Left, Up and Down are normally assigned to the cursor keys, and Enter to the 'Enter' or 'Return' key.

When you have assigned the five keys, the Main Menu is shown.

# Basic Configuration

```
==============================================================
    Intermate LX T-04 4214       version: K12-xxxx      960103
==============================================================


    MAIN MENU

   _Basic Configuration
    View Configuration
    Print Parameter List
    Print EBCDIC to ASCII table
    Edit Parameters
    Set Factory Defaults
    Save
    Exit


    Use <Up><Down> to move, <Enter> to Select
```

All entries are described in Section 4

The 'Basic Configuration' entry initiates a configuration procedure which guides you through a sequence of submenus. You are prompted for selections in the following order:

**1.** Printer Driver.

**2.** IBM Printer Emulation.

**3.** System Language.

**4.** ASCII Character Set(Not valid for the LX T-04).


**Select 'Basic Configuration'**

The Printer Driver submenu is shown.

*Note:*      If you make an error during the Basic Configuration, press Enter until the Main Menu appears, and enter the Basic Configuration.

### Select Printer Driver

This submenu is shown after you have selected 'Basic Configuration' in the
Main Menu.

```
================================================================
                     BASIC CONFIGURATION
================================================================


        PRINTER DRIVER

        _Generic printer
         IBM Graphics
         IBM Proprinter
         Epson FX/EX/DFX
         Epson LQ
         Fujitsu DL
         IBM Matrix (PPDS)
         HP LaserJet 4


        Use <Up><Down> to move, <Enter> to Select
```

A printer driver is a device driver containing all the variables, including
command sequences and character sets, required to drive a particular range of
printers.

The default printer driver is IBM Proprinter.


**You can switch to another Printer Driver if you prefer.**

In Laser emulation other printers are available.
See *Appendix A* for a list of available Printer Drivers.

**Select IBM Printer Emulation**

This submenu is shown after you have selected Printer Driver.

```
================================================================
                     BASIC CONFIGURATION
================================================================


        IBM PRINTER EMULATION


        _IBM 4214 model 2
         IBM 5256 model 1
         IBM 4224 model 1
         IBM 5225 model 1
         IBM 4230 model 101



        Use <Up><Down> to move, <Enter> to Select
```

The Intermate LX T-04 together with the PC type printer appears to the IBM system as an original IBM twinax printer. You have to select which IBM printer emulation that should be used.


**Select the IBM Printer Emulation matching your system configuration.**

*Note:*        Make sure the device address on the twinax port is configured according to the IBM Printer Emulation.

It is also possible to select IBM Printer Emulation by using the address switch. See *Appendix C*.

**Select System Language**

This submenu is shown after you have selected IBM Printer Emulation.

```
===============================================================
                     BASIC CONFIGURATION
===============================================================

         SYSTEM LANGUAGE
          037 US English/Canadian
          273 Austrian/German
          274 Belgian
          275 Brazilian
          276 CanadianFrench
          277 Danish/Norwegian
          278 Finnish/Swedish
          280 Italian
          281 Japanese English
          282 Portuguese
          284 Spanish Speaking
          285 UK English
          297 French
         -500 International Set 5
          871 Icelandic
         Use <Up><Down> to move, <Enter> to Select
```

You have to set up the Intermate LX T-04 for the System Language matching
your IBM system configuration in order to obtain correct language specific
characters.

The default System Language is '500 International Set 5'.

**Select the System Language corresponding to your IBM system
configuration.**

**End of configuration**.

The Basic Configuration is now completed, and the Main Menu is displayed
again.

# Save the Configuration

**Select 'Save' in the Main Menu.**

The following submenu is shown:

```
================================================================
                            SAVE
================================================================

        SAVE SETTINGS PERMANENTLY

        _Yes
         No




        Use <Up><Down> to move, <Enter> to Select
```

**Select 'Yes' to save the current configuration permanently.**

The system indicator stops flashing while save is in progress.
The Main Menu is displayed after a few seconds.

*Note:*     The original configuration remains in the permanent memory until
            you select 'Save'. If you exit without saving, the changes you have
            made to the configuration are lost at the next power-off.

# Exit the Configuration

**Select 'Exit' in the Main Menu.**

The following submenu is shown:

```
===============================================================
                         SAVE
===============================================================

        EDIT CONFIGURATION

        _Yes
         No

        Please remember to set the Device Address on the Address
        Switch!
        Power off before connecting to the system.




        Use <Up><Down> to move, <Enter> to Select
```

**Select 'Yes' to exit the configuration.**

The Configuration Utility is terminated and the screen is left blank.
Power off the printer, disconnect the terminal and connect the Intermate LX
T-04 to your IBM system.

If you select 'No' in this submenu the Main Menu is displayed again.

*Note:*     If you exit without saving, the changes you have made to the
            configuration are lost when the printer is switched off.

# 4. Advanced Functions

The Intermate LX T-04 supports a number of functions beyond standard IBM printer operation.

During normal mode of operation, Intermate LX T-04, together with your printer, emulates the IBM twinax printer selected in your configuration. In addition, the Extended Emulation Mode gives you access to functions not available in standard IBM printers.

The examples in this section are intended to give you an overview of how to use the advanced functions in the Extended Emulation Mode.

## Extended Emulation Mode

The advanced functions that you can access in the Extended Emulation Mode are:

- Transparency.

- Configuration from the System.

- Character Translation.

- User Definable Strings.

- String Substitutions.

- Bar Code printing.

The functions are programmed, and called, by text sequences inserted into your documents. The sequences are inserted between enter and exit commands that control the Extended Emulation Mode.

# Main Menu

A number of the advanced functions can be programmed or edited using Configuration from a Terminal. The Main Menu is displayed when the configuration is started (See *Configuration from a Terminal* on page 16).

```
===============================================================
     Intermate LX T-04    4214    version: K12-xxxx    960103
===============================================================


     MAIN MENU

     _Basic Configuration
      View Configuration
      Print Parameter List
      Print EBCDIC to ASCII table
      Edit Parameters
      Set Factory Defaults
      Save
      Exit


     Use <Up><Down> to move, <Enter> to Select
```

| | | |
|---|---|---|
| Basic Configuration | - | See *Section 3*. |
| View Configuration | - | display the basic configuration. |
| Print Parameter list | - | print the parameter list (*Appendix A.*) |
| Print EBCDIC to ASCII table | - | print the translation table (*Appendix B.*) |
| Edit Parameters | - | modify the settings to meet specific needs. |
| Set Factory Defaults | - | reset the configuration to defaults. |
| Save | - | store current configuration permanently. |
| Exit | - | exit configuration. |

# Configuration from the System

This function allows you to configure the Intermate LX T-04 without connecting it directly to a terminal as described in Section 3.
By inserting configuration commands in your document, you can tailor the Intermate LX T-04 to meet special requirements your print jobs.

**Document example:**

```
%P        (Configuration lead-in sequence)
=207,32   (Printer Driver= IBM Proprinter)
=10,1     (System Language=US English/Canadian)
=54,4     (ASCII Character Set= PC-850)
=206      (Initialize settings)
%         (Configuration trailer sequence)
&&??000   (Resume normal emulation mode and save settings)
```

The example shows how to select a Printer Driver and program the Basic Configuration parameters.

| | |
|---|---|
| '%P' | Tells the Intermate LX T-04 that configuration commands are to follow, ie enters Extended Emulation Mode. |
| '=' | Indicates a command line. Each command line has a function or parameter number. |
| '207' | Is a function number, followed by a comma and a value. '206' is also a function number. Please refer to the Technical Reference for a description of functions and their values. |
| '10' | Is a parameter number, followed by a comma and a value. '54' is also a parameter. See *Appendix A* for a description of the parameters. |
| '%' | Indicates the end of the configuration commands. |
| '&&??000' | Exits the Extended Emulation Mode and saves the settings permanently. |

*Note:*     The comments (within brackets) should not be included in your document.

# Transparency

IBM PC Support Virtual Printer is one way of sending data transparent to the printer. This method is always active and is not described in this guide.

This section describes the Intermate LX T-04 specific transparency methods.

The Transparency function allows you to send data directly to your printer without any conversion (pass-through). The data could be ASCII printer commands unsupported by the interface (eg underlined text), or even downloaded fonts.

Be careful when using the Transparency function for generating printable characters, selecting fonts or making text positioning. The Intermate LX T-04 supports these functions in normal emulation mode, and your settings may be overridden by the system.

There are two types of Transparency, Single-byte and Multi-byte. The function is accessed in Extended Emulation Mode.

The Single-byte Transparency function is called by a percent sign in your document ('%') and it passes through one subsequent ASCII byte (hexadecimal).

The Multi-byte function is started by two successive percent signs. When the start sequence ('%%') is found, the Intermate LX T-04 assumes hexadecimal data until a terminating percent sign occurs.

**Document Example** (Multi-byte Transparency):

You want the text to have an underlined part in the middle. Assuming that you have selected IBM Proprinter emulation, 'start underline' and 'stop underline' are defined by the ASCII codes $1B,$2D,$31 and $1B,$2D,$30 respectively:

```
This is %%1B2D31%underlined%%1B2D30% text
```

**Printout:**

```
This is underlined text
```

Please refer to the manual for your PC type printer for information on ASCII printer commands.

*Note:*        To access the Transparency function, Extended Emulation Mode must be entered.

# Configuration and Transparency Sequences

The Start and Stop Transparency and Configuration are controlled by three string parameters:

- *Transparency Lead-In Sequence (#041)*, empty by default.

- *Configuration Lead-In Sequence (#042),* empty by default.

- *Transparency/Configuration Trailer Sequence (#043),* empty by default.

See *Appendix A* for a description of the parameters. The parameters can be redefined using Configuration from the System.

### Define the Sequences

The parameters are defined when Extended Emulation Mode is entered.

### Example:

Enter Extended Emulation Mode and set the Transparency Lead-In Sequence to '%%', the Configuration Lead-In Sequence to '%P' and the Trailer Sequence to '%':

```
&&??%%P    (Enter Extended Emulation Mode and set parameters)
```

### Redefine the Sequences

The parameters can be redefined using text sequences in the document.

### Example:

Change the Transparency Lead-In Sequence from '%%' to '!?<' (EBCDIC codes $4F,$6F,$4C).Also, change the Trailer Sequence from '%' to '>&' (EBCDIC codes $6E,$50):

```
%P               (Configuration lead-in sequence)
=41,$4F,$6F,$4C  (New Transparency Lead-In)
=43,$6E,$50      (New Transparency Lead-Out)
=205             (Save settings permanently)
>&               (Initialize settings)
```

*Note:*  -        To redefine the sequences, Extended Emulation Mode must be entered. The sequences are reset if you exit and re-enter Extended Emulation Mode. See above.

         -        The sequences are redefined immediately. Therefore, the new sequence '>&' must be used as Configuration Trailer Sequence in the document.

**Example:**

Use the new sequences in the same example as in Section 4 (Multi-byte
Transparency in IBM Proprinter emulation):

```
This is !?<1B2D31>&underlined!?<1B2D30>& text
```

**Printout:**

```
This is underlined text
```

This results is the same printout as in the previous section.

# Edit Translation Tables

Normally, there is no need to edit the translation tables. The character
translation tables activated by the Printer Driver and System Language
selections are designed to produce the same printouts as the emulated IBM
printer.

If you should need to make further adjustments, this section explains the
character translation process and how to modify the translation tables to meet
specific needs.

## Character Translation
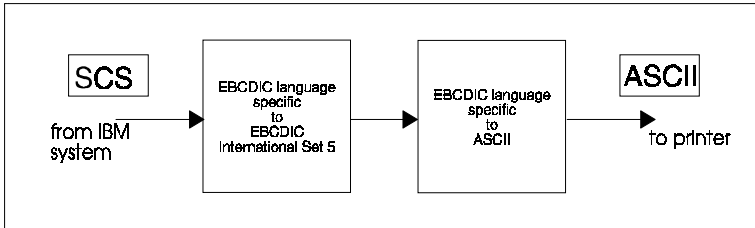


SCS data stream EBCDIC language specific characters are first translated into EBCDIC International Set 5 characters. This is the internal character representation in the Intermate LX T-04. The EBCDIC International Set 5 characters are then translated into ASCII codes, which are sent to the printer.

The EBCDIC language specific-to-EBCDIC International Set 5 translation table is determined by the selected System Language.

The EBCDIC International Set 5-to-ASCII table is determined by the selected Printer Driver.

You have access to the table that translates the EBCDIC International Set 5 codes to ASCII codes. Appendix B shows a printout of the characters for each EBCDIC International Set 5 code.

To be able to edit the translation table you have to select the Editable Set. This is done in the Basic Configuration (see *Section 3*) or as shown in the example below. Before editing, the Editable Set equals the PC-850 character set.

**Example:**

To change a left bracket '[' (EBCDIC International Set 5 code $4A) to a left bracket '{' which has ASCII value $7B. Insert the following programming sequences in your document:

```
%P                  (Configuration lead-in sequence)
=54,5               (Select Editable Set)
=203,$4A,$7B        (Translate EBCDIC Int. 5 $4A to ASCII $7B)
=206                (Initialize settings)
=205                (Save settings permanently)
%
```

'54'            Is the Parameter number. '5' selects the Editable Set (see
                *Appendix A*).

'203'           Is the function number, '$4A' is the EBCDIC International
                Set 5 code and '$7B' is the new ASCII value (old ASCII
                value is deleted).

'206' and '205'  Are also function numbers.

From now on, a left bracket '[' is replaced by '{' in printouts.

You can modify any number of cells in the table by adding lines with function
203 calls.

*Note:*          To edit, Extended Emulation Mode must be entered.

In 4214 emulation, you can edit the Translation Table although you cannot
select ASCII Character Set.

# User Defined Strings

There are ten parameters in the Parameter List that can be programmed as User Definable String (Parameters #120-#129). A common application is to program and store various printer control commands, and send them to the printer using string references rather than the commands themselves. Please refer to the manual for your PC type printer for information on ASCII printer commands.

**Programming the Strings**

**Example:**

You want to store commands for underlining text. Assuming that you have selected Epson emulation, 'start italic' and 'stop italic' are defined by the ASCII codes $1B,$34 and $1B,$35 respectively:

```
%P              (Configuration lead-in sequence)
=120,$1B,$34    (Program parameter # 120 to "start underline")
=121,$1B,$35    (Program parameter # 121 to "stop underline")
%
```

The maximum String length is determined by the Free String Area.

'120' and '121' are the Parameter numbers. These are referred to as User Definable Strings '0' and '1' respectively.

*Note:*     Strings are programmed in Extended Emulation Mode.

**Using the Strings:**

To underline text in a document using strings number '0' and '1':

```
This is %Z0underlined text%Z1 text
```

**Printout:**

```
This is underlined text
```

*Note:*     To use the Strings, Extended Emulation Mode must be entered.

# String Substitutions

This function is useful when you want to print a document that is prepared for a different PC type printer than yours.

The document contains control commands for a specific printer, and you have to convert these commands in order to print this document with your printer. Instead of changing the document, you can let the Intermate LX T-04 do the conversion for you by using String Substitution.

The String Substitution function searches the data stream for a specified sequence of ASCII characters and substitute them with another sequence. Note that this function operates after the character and control code conversion.

**Example:**

Assume that you have selected IBM Proprinter emulation. The document is prepared for an HP LaserJet and contains 'start underline' and 'stop underline' pass-through commands at several locations. To print the document with an IBM Proprinter, the sequences must be converted. To 'start underline', the IBM Proprinter uses ASCII value string $1B, $2D, $31 and the HP LaserJet uses $1B, $26, $64, $44. 'Stop underline' commands are $1B, $2D, $30 and $1B, $26, $64, $40 respectively.

The following pages show how to program these substitutions, both from a Terminal and the System.

**Programming String Substitutions from a Terminal**

Start the Configuration from Terminal as described in Section 3.

**1.**     Select the Edit Parameters entry in the Main Menu. Match and Substitute Strings start from parameter #150.

**2.**     Edit the first two string substitution pairs. Use the cursor keys to edit.

The Edit Parameters Menu now looks like this:

```
==============================================================
                    EDIT PARAMETERS
==============================================================
                                    Free String Area:
                                    $1AA0


      #150 Match String    1_____$1B,$26,$64,$44.
      #151 Subst. String   1_____$1B,$2D,$31.
      #152 Match String    2_____$1B,$26,$64,$40.
     _#153 Subst. String   2_____$1B,$2D,$30.
      #154 Match String    3_____ .
      #155 Subst. String    3_____ .
      #156 Match String    4_____ .
      #157 Subst. String    4_____ .
      #158 Match String    5_____ .
      #159 Subst. String    5_____ .


      Use cursor keys to edit, <Enter> to exit
```

When a Match String is encountered in the ASCII data stream, it is replaced by the subsequent Substitute String.

The maximum Match String length is 50 bytes. The maximum Substitute String length is determined by the Free String Area.

*Note:* -   Extensive use of Substitutions may slow down the printing speed.
-   Changing Printer Driver deletes all String Substitutions.

**Programming String Substitutions from the System**

The same programming example as above can also be obtained by inserting the following lines into your document:

```
%P                     (Configuration lead-in sequence)
=150,$1B,$26,$64,$44   (Start underline - HP LaserJet)
=151,$1B,$2D,$31       (Start underline - IBM Proprinter)
=152,$1B,$26,$64,$40   (Stop underline - HP LaserJet)
=153,$1B,$2D,$30       (Stop underline - IBM Proprinter)
=205                   (Initialize settings)
=206                   (Save settings permanently)
%                      (Configuration trailer sequence)
```

*Note:*     String Substitutions are programmed in Extended Emulation Mode.

# Bar Codes

This function gives you easy access to a range of standard bar code types. You can design every single bar code printout to meet your specific requirements, such as width and height.

There are two functions and two parameters that are used for printing bar codes:

- Function '211' defines the bar code.

- Function '212' prints the bar code.

- Bar Code Driver #053, 4214.

- Bar Code Attributes #054, 4214.

The definition has to be done before a bar code can be printed. See *Appendix A* for a description of parameters.

### Define Bar Codes

The function '211', which is to be inserted into a document, has the following syntax:
211,value 1,value 2,value 3,value 4,value 5

The function number is followed by five bar code specification values. All five values must be specified:

value 1:    Bar Code Type. Selectable values (in decimal):

|     |     |                   |
| --- | --- | ----------------- |
| 1   | =   | Code 39           |
| 3   | =   | UPC-A             |
| 8   | =   | EAN8              |
| 9   | =   | EAN13             |
| 12  | =   | 2 of 5 Interleaved |
| 13  | =   | Codabar Matrix    |
| 17  | =   | Code 128          |

value 2:    Module Width as a multiple of 1/120 inch.
The value may range from 1 to 32 (in decimal).

value 3:    Bar Code Height in number of lines (1/6 inch).
The value may range from 1 to 32 (in decimal).

value 4:    Human Readable Text. Selectable values:

|     |     |                                                      |
| --- | --- | ---------------------------------------------------- |
| 0   | =   | No textline below the bar code                       |
| 1   | =   | Human readable textline below the bar code.          |
| 2   | =   | Human readable textline below the bar code with empty line in between. |

value 5:    Horizontal Bar Code Start Position in 1/12 inch steps. The range
for the value is from 1 to 255 (in decimal).

*Note:*     When you set the horizontal width and start position, make sure that
the printout fits on the paper area.


**Print Bar Code**

The function '212' prints a bar code according to the settings in the bar code
definition. The syntax is as follows:

```
212,"bar code data"
```

**Document Example:**

```
%P                     (Configuration lead-in sequence)
=211,9,2,2,1,10        (Define Bar Code)
=212,"123456789012"    (Print Bar Code)
%                      (Configuration trailer sequence)
```

**Printout**



*Note:* To Define and print bar code, Extended Emulation Mode must be
entered.

# 5. Solving Problems

This section helps you to solve any problems that might arise when installing or using your Intermate LX T-04 interface. There are three major areas of difficulty:

- Missing printouts.

- Incorrect printouts.

- Host communication problems.

Use the following checklists to pinpoint the possible cause. If your problems should continue, please contact your dealer/distributor.

## Missing Printouts

In case of missing printout, check the following:

**1.**    *Is the printer on-line (Ready)?*

No: Set the printer on-line (see the printer manual).

**2.**    *Is the printer correctly attached?*

Make sure that the Intermate LX T-04 is connected properly to the printer.

If your printer has both parallel and serial input ports, the printer must be set up for the parallel connection.

**3.**   *System printouts: Is the SYSTEM indicator on?*

No: The Intermate LX T-04 is not correctly connected to the system, or the power-up routine has been disturbed. Restart the interface (power-off/power-on). If this doesn't help, see *Host Communication Problem*.
Flashing: The Intermate LX T-04 is in Test Mode. To exit set the address switch to position '9', or switch the Intermate LX T-04 off and on.

# Incorrect Host Printouts

There are three major types of incorrect printouts:

**Some Characters are Printed Incorrectly**

- *Characters like* ä ü Ä Ü *are printed as* { } [ ]

  Most likely an incorrect System Language has been selected. Select the System Language matching your system configuration. see the section *Select System Language*.

- *Characters like* é ì ô ü *are printed as* e i o u

  Your printer has not been set up for the character set matching the ASCII Character Set selection. Make sure that you have selected the correct Printer Driver and the correct ASCII Character Set in the Basic Configuration.

If this doesn't help, your printer may not be able to print all the characters that the system produces. Print out the EBCDIC-to-ASCII translation table (see *Appendix C*), and compare this to the table in *Appendix B*. In some cases it is possible to edit the translation table, or to select another character set in your printer. Consult your distributor for further details.

**Corrupted Printouts**

This is generally caused by selecting a Printer Driver not matching your printer. The control commands are then misinterpreted by the printer, causing corrupted printouts. If changing Printer Driver does not help, you can use the ASCII hexdump function (see *Producing Hexdumps*) to locate the control commands causing the problem.

**Incorrect Page Breaks**

This may be caused by an incorrect Printer Driver selection. There may also be a printer problem, causing it not to print all lines on a page.

# Host Communication Problem

In case of missing system printouts, please follow this checklist.

**1.**   *Is the SYSTEM indicator lit?*

Yes: The printer may not be properly connected. Please refer to Section 2.

**2.**   *Is the device address correct?*

Make sure the address switch is set to the desired device address. Switch the Intermate LX T-04 off and on. Valid values for the device address are within the range 0 to 6.

**3.**   *Does the host configuration match the Intermate LX T-04 configuration?*

The Intermate LX T-04 must be configured according to the IBM printer that has been defined for the device address on the twinax port.

**4.** *Has the print job been released from the host?*

Check that Vary On has been made and that the print job has been released from the print queue. Ask your System Manager.

**5.** *Is the twinax line terminated?*

The last unit on the twinax line must be terminated. Check that all units along the twinax line are installed correctly and that the termination is correct.

**6.** *Are any cables broken?*

Check that the cables are properly connected and fully functional.

# Reporting Problems

If you run into problems that you can't solve on your own, it is important that you make an error report for your System Manager or distributor. The error report should include:

- A printout with a description of the errors.

- If possible, a correct printout.

- A Parameter List.

- A System and ASCII hexdump.

If you need technical support, please contact your dealer. If they can't help you, they forwards your request through the appropriate channels.

### Printing the Parameter List

The Parameter List shows the complete configuration. A selection of parameters are described in Appendix A. To print the Parameter List, do as follows:

**1.** Make sure that your printer is on-line.

**2.** Set the address switch to '9', and wait for approx. 3 seconds until the SYSTEM indicator starts to flash. You are now in the Test Mode.

**3.** Set the address switch to '8' to start the printout.

**4.** Set the address switch to '9' when the printout is completed. The SYSTEM indicator stops flashing.

**5.** Select the device address to resume normal print operation.

**Producing Hexdumps**

A hexdump is a printout where the input data stream is printed as hexadecimal byte values rather than being interpreted as characters and control codes. The Intermate LX T-04 features two different types of hexdump modes

- System hexdump

  This mode traps the input SCS data before the character and control code conversion. The data is printed as EBCDIC hexadecimal values.

- ASCII hexdump

  The input data is converted to ASCII hexadecimal values before printing. This mode is useful if you want to see what printer control command a certain IBM control code corresponds to.

The procedure for producing a hexdumpis as follows:

**1.** Switch the printer and Intermate LX T-04 off and on.

**2.** Set the address switch to '9', and wait for approx. 3 seconds until the SYSTEM indicator starts to flash. You are now in the Test Mode.

**3.** Select position '4' for system hexdump, or position '3' for ASCII hexdump.

**4.** Repeat your print job. The data is now printed in hexadecimal form.

**5.** Set the address switch to '9' when the printout is completed.

   The SYSTEM indicator stops flashing.

**6.** Select the device address to resume normal print operation.

Example of ASCII hexdump:

```
Intermate LX T-04 4214 version: K12-xxxx  960103
Printer Driver #32 IBM Proprinter

0001 1B 26 61 33 36 30 48 1B 26 61 35 32 38 56 1B 26 "-&a360H-&a528V-&"
0002 61 33 36 30 48 1B 26 61 35 32 38 56 54 45 53 54 "a360H-&a528VTEST"
```

# Error messages

There are several error conditions that causes the Intermate LX T-04 to print an error message on your printer:

```
61-UNPRINTABLE CHARACTER
```

This message is caused by invalid character codes or LAC buffer overflow.

```
64-RESET COMMAND RECEIVED FROM HOST
```

This message is caused by bad communication lines or colliding device addresses. The Intermate LX T-04 tries to re-establish host communication after 10 seconds.

```
BD-SOFTWARE/HARDWARE ERROR
```

The software cannot run in the current hardware. Contact your dealer.

```
BE-BAR CODE ERROR
```

Incorrect or insufficient bar code definition. The bar code must be specified with five values. See *Section 4*.

```
E2-PERMANENT MEMORY CHECKSUM ERROR, FACTORY DEFAULTS SET
```

This message indicates that the non-volatile memory has been corrupted. The Intermate LX T-04 is automatically set to factory default state (your configuration is lost). If the message does not re-appear after power-off/power-on, configure the Intermate LX T-04. *See Section 3.*

This message also appears as a normal consequence of a change between laser and matrix emulation.

```
E6-MEMORY OVERFLOW: FREE STRING AREA EXHAUSTED
```

The available string area is exhausted. You must remove some strings from your configuration. The size of the available string area is printed in the Parameter List header, and is also displayed in all string programming menus.

```
F1-TWINAX TRANSCEIVER ERROR
```

Hardware error. Contact you dealer/distributor.

# Appendices

## A. The Parameter List

The Parameter List shows the available configuration of the Intermate LX
T-04. Each parameter contains a value or string that is used to determine how
the Intermate LX T-04 should behave towards the host and towards the printer.

### Printout Example

This printout shows the beginning of a Parameter List (the header and the first
10 parameters) for the IBM Proprinter printer driver. Your own printout may
differ depending on printer driver selection, firmware revision and customized
configuration.

```
Intermate LX T-04    4214    version: K12-xxxx    960103

Printer Driver #32 IBM Proprinter
Device Address: 0
Free String Area: $1d99

#001 Form Length_____ 48
#002 Char. Density_____ 10
#003 Line Density_____ 6
#004 Sheet Feeder_____ 0
#005 Print Quality_____ 1
#006 Lock CPI_____ No
#007 Lock LPI_____ No
#008 Lock Feeder Type_____ No
#009 Lock Print Quality_____ No

#010 System Language_____ 9
```

## Printer Drivers

A printer driver is a device driver containing all the parameters required to drive a particular range of printers. The following printer drivers are available in IBM 4214 emulation:

| No | Title | No | Title |
|---|---|---|---|
| *30 | Generic Printer (default) | 34 | Epson LQ |
| 31 | IBM Graphics | 35 | Fujitsu DL (DPL24C) |
| 32 | IBM Proprinter | 44 | IBM Matrix (PPDS) |
| 33 | Epson FX/EX/DFX | 48 | HP LaserJet |

## Parameter Descriptions

### #10 System Language

This parameter makes the EBCDIC language specific to International 5 translation table match the System Language configuration of your IBM System.

| Value | Description | Value | Description |
|---|---|---|---|
| 1 | 037 US English/Canadian | *9 | 500 International Set 5 (default) |
| 2 | 272 German/Austrian | 10 | 280 Italian |
| 3 | 274 Belgian | 11 | 281 Japanese English |
| 4 | 275 Brasilian | 12 | 282 Portuguese |
| 5 | 276 Canadian French | 13 | 284 Spanish Speaking |
| 6 | 277 Danish/Norwegian | 14 | 285 UK English |
| 7 | 278 Finnish/Swedish | 15 | 871 Icelandic |
| 8 | 297 French | | |

### #15   ASCII Character Set

Selects the ASCII Character Set to be used in the printer.

| Value | Description | Value | Description |
|-------|-------------|-------|------------|
| 0 | US ASCII | 7 | Spanish |
| 1 | Swedish/Finnish | 8 | Japanese |
| 2 | Danish/Norwegian | 9 | PC-8 |
| 3 | German/Austrian | 10 | Roman-8 |
| 4 | UK English | 11 | PC-850 |
| 5 | Italian | 12 | Xerox 3700 |
| 6 | French/Belgian | 13 | PC 858 (Euro Support) |

### #26   IBM Printer Emulation

Selects the IBM Printer emulation.

| Value | Description | Value | Description |
|-------|-------------|-------|------------|
| *0 | IBM 4214 model 2 (default) | 3 | IBM 5225 model 1 |
| 1 | IBM 5256 model 1 | 5 | IBM 4230 model 101 |
| 2 | IBM 5224 model 1 | | |

### #40   Escape Character

Select the EBCDIC character code used for Single-byte Transparency and User Definable Strings.

| Value | Description | Value | Description |
|-------|-------------|-------|------------|
| $40-$FF | (one character code) | *$00 | (undefined default) |

### #41   Transparency Lead-In Sequence

Starts Multi-byte Transparency Mode.

| Value | Description | Value | Description |
| --- | --- | --- | --- |
| <any seq> | (max 8 character codes) | *<empty> | (default) |

### #42   Configuration Lead-In Sequence

Starts Configuration Mode.

| Value | Description | Value | Description |
| --- | --- | --- | --- |
| <any seq> | (max 8 character codes) | *<empty> | (default) |

### #43   Transp./Config. Trailer Sequence

Terminates the Transparency Multi-byte and Configuration Modes.

| Value | Description | Value | Description |
| --- | --- | --- | --- |
| <any seq> | (max 8 character codes) | *<empty> | (default) |

### #45   Job Time-out

Timer value starting after a host job has ended. If the time-out value is reached before any new data arrives at the Cobra+, the Start of Job Sequence (#046), the Power-up Sequence (#090) and current emulator settings are sent before next host job.

| Value | Description | Value | Description |
| --- | --- | --- | --- |
| 0 | off (default) | 1-255 | Value in seconds. |

### #46   Start of Job Sequence

Sent before next host printout if timer Job Time-out has elapsed.

| Value | Description | Value | Description |
|-------|-------------|-------|-------------|
| <any seq> | (length and contents free of choice) | *<empty> | (default) |

### #53   Bar Code Driver

Selects the graphics driver used for bar code printing. The default value depends on the selected Printer Driver.

| Value | Description | Value | Description |
|-------|-------------|-------|-------------|
| 0 | Off | 2 | Epson LQ/Fujitsu DPC24C |
| 1 | IBM Proprinter/Epson FX | 8 | HP-PCL |

### #54   Bar Code Attributes

Adjust bar code printout quality to paper and printer conditions.

| Value | Description | Value | Description |
|-------|-------------|-------|-------------|
| *0 | Normal (default) | 2 | Bold |
| 1 | Thin | 3 | Thin and Bold |

### #120-#129   User Definable Strings

Programming and use are described in section 4.

| Value | Description | Value | Description |
|-------|-------------|-------|-------------|
| <any seq> | (any length and contents) | *<empty> | (default) |

### #150-#189  String Substitutions

Programming and use are described in section 4.

| Value | Description | Value | Description |
|-------|-------------|-------|-------------|
| <any seq.> | (any length and contents) | *<empty> | (default) |

# B. EBCDIC Character Table

This table (EBCDIC International Set 5) shows the internal character representation in the Intermate LX T-04.

|   | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 |   | & | - | ø | Ø | ° | µ | ¢ | { | } | \ | 0 |
| 1 |   | é | / | É | a | j | ~ | £ | A | J |   | 1 |
| 2 | â | ê | Â | Ê | b | k | s | ¥ | B | K | S | 2 |
| 3 | ä | ë | Ä | Ë | c | l | t | Pt | C | L | T | 3 |
| 4 | à | è | À | È | d | m | u | ƒ | D | M | U | 4 |
| 5 | á | í | Á | Í | e | n | v | § | E | N | V | 5 |
| 6 | ã | î | Ã | Î | f | o | w | ¶ | F | O | W | 6 |
| 7 | å | ï | Å | Ï | g | p | x | ½ | G | P | X | 7 |
| 8 | ç | ì | Ç | Ì | h | q | y | ¼ | H | Q | Y | 8 |
| 9 | ñ | ß | Ñ | ` | i | r | z | ¾ | I | R | Z | 9 |
| A | [ | ] | ¦ | : | « | ª | ¡ | ¬ | — | ¹ | ² | ³ |
| B | . | $ | , | # | » | º | ¿ | ¦ | ô | û | Ô | Û |
| C | < | * | % | @ | ð | æ | Ð | ¯ | ö | ü | Ö | Ü |
| D | ( | ) | _ | ' | ý | , | Ý | ¨ | ò | ù | Ò | Ù |
| E | + | ; | > | = | þ | Æ | Þ | ´ | ó | ú | Ó | Ú |
| F | ! | ^ | ? | " | ± | ¤ | ® | = | õ | ÿ | Õ |   |

Read each EBCDIC code as a column and row position. For example EBCDIC International Set 5 code $81 represents the character 'a'.

*Note:*  If Euro Support has been enabled, the international currency symbol "¤" symbol at position $9F is replaced with the Euro symbol "€".

# C. Operating the LX T-04

## The SYSTEM indicator

This indicator (green) is lit when the Intermate LX T-04 is connected to your IBM system. It can also flash under the following conditions:

- Flash during a few seconds at power up.

- Flash in Test Mode. Described later in this chapter.

- Rapid flash during test function execution and during flash loading of new software.

*Note:* If the power up flashing continues, a hardware error has occurred. Contact your dealer/ distributor.

## The Address Switch

The ten-position address switch is used to set the device address for the Intermate LX T-04. It is also used to set start conditions and to select and execute test functions during operation.

### Start Conditions

The action when the Intermate LX T-04 is switched on is determined by the setting of the address switch, as follows:

| Pos. | Description |
|------|-------------|
| 0 - 6 | Divice address in normal print operation. |
| 7 | Reserved. |
| 8 | Select IBM 4214 Printer emulation, |
| 9 | Perform a test printout. |

**Device address**

Follow these steps to change the device address:

**1.** Switch the Intermate LX T-04 off.

**2.** Select a new device address (positions 0-6).

**3.** Switch the Intermate LX T-04 on.
A warning for change of device address is printed.

**4.** Step the address switch one position forward, and then back.
The new device address is confirmed by a printed message.

**Test Mode**

Test Mode is reached from normal print operation. It is used to access a number of internal functions. Normal print operation is inhibited.

**1.** Make a note of the current Address Switch position (device address).

**2.** Set the address switch to position '9'. When the SYSTEM indicator starts to flash, you can select one of the following Test Mode functions:

| Pos. | Test Mode Function |
|------|--------------------|
| 0 | *Restart* - same as power off/power on. |
| 1 | *Set Factory Defaults* - abandon the current configuration. See note. |
| 2 | *Print Character Translation Table* - see *Appendix B*. |
| 3 | *ASCII Hex Dump Mode* - trap the outgoing data stream and print characters and control commands as hexadecimal values. |
| 4 | *System Hex Dump Mode* - trap the incoming data stream and print characters and control codes as hexadecimal values. |
| 5 | Reserved. |
| 6 | Not used. |
| 7 | *Terminal Set-up Mode* - run the Configuration Utility using a directly attached 5250 terminal, see *Section 3*. |
| 8 | *Print Parameter List* - print the complete configuration, see *Appendix A*. |
| 9 | *Exit Test Mode* - resume normal print operation. |

Do not forget to set the address switch to the current device address again for normal print operation. Switch the Intermate LX T-04 off and on.

*Note:*      To set factory default configuration requires a two-step operation to avoid accidental activation and loss of configuration settings:

     **1.**    Set the address switch to position '1'.

     **2.**    Within 2 seconds, set the address switch to position '2'.

## Select IBM Printer Emulation

You can select IBM Printer Emulation by using the address switch. This section applies to the IBM 4214 emulation only. Proceed as follows:

**1.**    Switch the Intermate LX T-04 off. Note the current device address.

**2.**    Select the position '8' on the address switch.

**3.**    Switch the Intermate LX T-04 on. A printed message indicates the current IBM Printer Emulation.

**4.**  Press the printer's ONLINE/OFFLINE key twice to change emulation.

The new emulation is confirmed by a printed message. Repeat until the required emulation mode is achieved. Refer to the list in Section 1.

**5.**  Switch the Intermate LX T-04 off to save the current emulation.

**6.**  Set the device address and switch the Intermate LX T-04 on for normal print operation.

# D. Updating the Software

**Software that can be Updated**

- The Intermate LX T-04 software held in *Flash ROM*.
  A specific cable is needed to upgrade the firmware.

**Checking if an update is available**

Contact your dealer to check if a new firmware release is available. You should have the printer's current firmware release number ready to compare against the latest software release from LCI Intermate A/S.

Alternatively you can visit the Intermate web site:

   *http://www.intermate.com*

Here you can download the latest firmware version.

**Updating the Intermate LX T-04 Flash ROM**

You can carry out an update to your Flash ROM through the parallel printer port of the Intermate LX T-04.

*How to update the firmware*

*Note:*     If the LX T-04 is attached to the system and operating, then the current address switch position represents the device address assigned to the LX T-04. Write this number down and save it.

**1.**     Power Off the printer.

**2.**     Disconnect the LX T-04 from the system, ie remove the cable inserted in the DB9 connector.

**3.** Disconnect the LX T-04 from the printer, ie disconnect the ribbon cable from the printer.

**4.** Make sure the PC has been powered Off.

**5.** Attach the download cable to the PC's LPT1 port. Contact your dealer for further information on the download cable.

**6.** Connect the LX T-04 to the download cable.

**7.** Make sure the the power cable from the PCB is connected with the 5V power cable assembly mounted in the printer.

**8.** Attach the power supply to the download cable at the PC, ie supply the cable with power.

**9.** Power On the PC.

**10.** Power On the printer.

**11.** Copy the firmware file *K12-xxxx.bin* to the PC's hard drive.

**12.** Start a DOS session and go to the directory where you placed the firmware file.

**13.** Download the firmware with the binary switch (/b).

```
copy K12-xxxx.bin lpt1 /b
```

**14.** Monitor the download by watching the LED on the interface. This flashes fast two times a second for approximately 20 - 30 seconds during the download.

**15.** The download is complete when the LED flashes slowly once every fourth second.

**16.** Power Off the printer.

**17.** Power Off the power supply for the download cable.

**18.** Disconnect the interface from the download cable.

**19.** Connect the interface to the printer, ie connect the ribbon cable and the power cable.

**20.** Mount the interface on the back of the printer.

**21.** Set the switch on the side of the interface case to "9" (= test printout function).

**22.** Power On the printer.

**23.** Look at the test printout to confirm the update of the firmware.

*Note:* The error message printed after the test printout text can be ignored. This is because new firmware has been downloaded and the entire configuration has been reset to default values.

**24.** Power Off the printer.

**25.** Set the switch on the side of the LX T-04 to the device address (0-6) previously held by the LX T-04.

The upgrade is now complete and the printer can be reconnected to the system.

# E. Euro Support

Support for the Euro symbol can be achieved in two ways. Either by updating the LX T-04 firmware and selecting the Euro character set *or* by making a permanent character substitution in the interface. Both approaches require that the printer firmware supports the Euro symbol and are covered by this appendix.

The interface firmware release *K12-8491* and above supports the Euro symbol via the new ASCII character set "PC-858". This is achieved by replacing the international currency "¤" symbol with that of the Euro symbol "€". The character set is selected via the terminal configuration method.

Permanent substitution of the international currency symbol with the Euro symbol is done by sending a command sequence to the interface. This approach does not require the interface firmware to be updated, as only the character number is sent to the printer.

# Printer Firmware Requirements

In order to be able to print the Euro symbol, the printer firmware has to meet the minimum firmware requirement listed in the below table.

| Printer model | Required firmware |
|---|---|
| Lexmark 23xx | version 1.7 (or greater) |
| Lexmark 4227 | Version 3.1 (or greater) |
| Lexmark 4227 Plus | There is no minimum firmware requirement for this printer. |

Refer to your printer's *User's Guide* for instructions on how to check and upgrade the firmware.

# Euro Support via Terminal Configuration

The Euro symbol is contained in the ASCII character set "PC-858". This is also the default character set for the firmware release *K12-8491*. Euro Support is disabled by selecting an ASCII character set other than "PC-858" for the current printer driver.

| Printer driver | ASCII character set (with Euro Support - default) | ASCII character set (without Euro Support) |
|---|---|---|
| **IBM Proprinter** | PC-858 | PC-850 |
| **Epson FX/EX/DFX** | PC-858 | PC-850 |
| **Epson LQ** | PC-858 | PC-850 |

If you are unsure whether your LX T-04 firmware is equal to or greater than *K12-8491*, you should make a test printout. This is done by turning the printer Off, setting the LX T-04's address switch to position "9" and turning the printer On.
The *Intermate LX T-04 version* number is printed at the top of the printout. This should be *K12-8491* or greater. The last four digits represent the firmware revision number. The higher this number is, the newer is the firmware.

Contact your dealer if the firmware needs upgrading. Alternatively, a zipped file containing the firmware can be downloaded from the Intermate web site (www.intermate.com). Search for "K12" in the Support section's Download section. Download the file called *K12-xxxx.zip*. You will need a decompressing tool like WinZip® to extract the file.
Refer to appendix *D. Updating the Software* on page 61 for details on how to update the firmware.

*How to disable Euro support*

This procedure requires that the LX T-04 has been updated with the firmware *K12-8491* or greater.

**1.**     Switch Off the printer and disconnect it from the network.

2. Make sure the Intermate LX T-04 is attached correctly to the printer. See separate sheet for details about installing the interface.

   *Note:* If the LX T-04 was attached to the system and operating, then the current address switch position represents the device address assigned to the LX T-04. Write this number down and save it.

3. Set the address switch to position "9". This generates a test printout at the next power On.

4. Switch On the printer. The SYSTEM indicator flashes for a few seconds.

5. Study the test printout. It shows the firmware number and the default settings. Note whether the ASCII character set is set to "PC-858", which means Euro Support is active.

```
******** TEST PRINTOUT ********
Intermate LX T-04 version: K12-8491

Printer Driver #32 IBM Proprinter
IBM Printer Emulation_____ IBM 4214 model 2
System Language_____ 500 International Set 5
ASCII Char. Set_____ PC-858
```

6. Switch Off the printer.

7. Connect a terminal to the Intermate LX T-04 using the T-cable, and switch the terminal On. The terminal should be terminated.

8. Set the address switch to position "7" and switch On the printer. Wait a few seconds after the SYSTEM indicator has stopped flashing.

9. Select position "9". Wait until the SYSTEM indicator starts to flash.

**10.** Select position "7" again. Within a few seconds, the *Key Definitions* menu should appear on your terminal.

```
================================================================
     Intermate LX T-04 4214      version: K12-8491       981130
================================================================


     KEY DEFINITIONS

     Right
     Left
     Up
     Down
     Enter




Assign Cursor keys              Intermate International A/S 1996
```

**11.** Assign the on-screen navigation keys according to your preferences.

**12.** The Main Menu appears after the assignment of the keys.

```
================================================================
     Intermate LX T-04 4214      version: K12-8491       981130
================================================================


     MAIN MENU

      Basic Configuration
      View Configuration
      Print Parameter List
      Print EBCDIC to ASCII table
      Edit Parameters
      Set Factory Defaults
      Save
      Exit

     Use <Up><Down> to move, <Enter> to Select
```

**13.** Select the "Edit Parameters" menu item. This brings up the following screen.

```
==============================================================
                      EDIT PARAMETERS
==============================================================
                                    Free String Area: $1D99

      Printer Driver: IBM Proprinter

      001 Form Length_____ 48
      002 Char. Density_____ 10
      003 Line Density_____ 6
      004 Sheet Feeder_____ 0
      005 Print Quality_____ 1
      006 Lock CPI_____ No
      007 Lock LPI_____ No
      008 Lock Feeder Type_____ No
      009 Lock Print Quality_____ No
      010 System Language_____ 6
      011 Max. Print Pos._____ 132
      012 Left Margin_____ 1
      014 Lock Max. Print Pos.____ No
      015 ASCII Char. Set_____ 13
      016 Color-String to Send____ 10
      017 UDS-String to Send_____ 10


      Use cursor keys to edit, <Enter> to exit
```

**14.** Set the "ASCII Char. Set" parameter to a value other than "13" to disable Euro Support. Refer to the option description on page 51.

**15.** Press <Enter> to return to the Main Menu.

**16.** Select "Save" and answer "Yes" to save the settings permanently.

**17.** Select "Exit" on the Main Menu and answer "Yes" to leave the configuration utility.

**18.** Power Off the printer and disconnect the LX T-04 from the terminal.

**19.** Set the address switch to the device address (0-6) previously held by the LX T-04.

**20.**    Connect the LX T-04 to the network and power the printer On.

# Euro Support via Command Sequences

*Note:*  This approach does NOT require that the LX T-04 has been updated
with the firmware *K12-8491* or greater. This is because the substitution
of the international currency with the Euro symbol takes place *after* the
character set has been chosen in the LX T-04.

Send one of the below command sequences to the printer to disable or enable
Euro Support.

| Disable Euro Support | Enable Euro Support |
|---|---|
| ```
&&??%%P
%P
=54,5
=203,$9F,$CF
=206
=205
%
&&??000
``` | ```
&&??%%P
%P
=54,5
=203,$9F,$D5
=206
=205
%
&&??000
``` |

# F. Technical Specifications

**Supported Printers**

- Lexmark 23xx Plus

- Lexmark 4227

- Lexmark 4227 Plus

**Attachments**

- IBM System/34.

- IBM System/36.

- IBM System/38.

- IBM System AS/400.

- IBM 5259 Migration Data Link.

- IBM 5294 Control Unit.

- IBM 5394 Control Unit.

- IBM 5251 Model 12 Control Unit.

- IBM 5299 Terminal Multiconnector.

**IBM Printer Emulation**

- IBM 4214 model 2(default).

- IBM 5256 model 1,2 and 3.

- IBM 5224 model 1 and 2.

- IBM 5225 model 1,2,3 and 4.

- IBM 4230 model 101.

**IBM System Features**

- SCS and FFT Data stream.

- Page Presentation Media.

- Cut Sheet Feeder Command.

- PC/Support Virtual Printer.

- Multiple Bin Support.

- 15 National Languages.

**Additional IBM 4214 feature**

- Graphics Support Through LAC.

**Intermate LX T-04 Additional Features**

- Configuration from a Terminal or from the System.

- Editable Character Translation Table.

- 10 User Definable Strings.

- Programmable Transparency Function (data pass-through).

- Predefined Printer Drivers for all major ASCII printers, fully editable.

- Bar Codes.

- String Substitutions.

**Hardware Specifications**

Size:       29x55x100 mm / 1.2"x2.2"x4.0".

Weight:    0.15 kg/ 0.3 lb.

Power:     5 VDC, min 170 mA(applied by the printer).

**Approvals EMC**

CE:        EN 55022/1987, EN 50082-1/1992. FCC Class A.

Safety:    EN 60950, UL, CSA.

**Operating Environment**

Temp.:     5-40°C / 40-105°F.

Humidity:  20-80% non-condensing.

# G. Related Publications

| Title | Part Number |
|---|---|
| IBM System/36 Functions Reference Guide | SA-21-9436-05 |
| IBM AS/400 Guide to Programming for Printing | SC21-8194-0 |
| IBM AS/400 Printing | GG24-3452-00 |
| IBM AS/400 Programming: Advanced Printer Function Guide | SC21-9668-0 |
| IBM AS/400 Utilities: BGU User's Guide and Reference | SC09-1167-02 |
| Document Content Architecture Final-Form-Text Reference | SC23-0757-1 |
| IBM 4214 Printer Model 2 Product Decription | GC31-2582-1 |

# H. Customer Support

If you cannot find answers in this guide about using the Intermate LX T-04, please contact your point of purchase, your local Lexmark office, or call the Lexmark Technical Support line.

*North America:*       Lexmark International, Inc.
                740 New Circle Road
                Lexington, KY 40550

                Phone:   1-800-Lexmark or 606-232-3000
                Fax:       606-232-2873

*Europe:*          Lexmark International S.A.
                B.P. 9001
                45910 Orleans Cedex 9
                France

                Phone:   +33 238 71 1559
                Fax:       +33 238 83 4483

*Worldwide:*        For worldwide Lexmark support phone numbers,
                visit the Lexmark web site at
                http://www.lexmark.com.

If you have changes or comments to this guide, please inform LCI Intermate A/S in writing at one of the below addresses.

                LCI Intermate A/S
                Odinsvej 19
                2600 Glostrup
                Denmark

                E-mail:        support@intermate.com
                Internet:      www.intermate.com

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